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(54) Title: COSMETIC COMPOSITIONS

(57) Abstract: According to the present invention there is provided a cosmetic composition comprising: (a) at least one quaternary ammonium agent; (b) greater than 10 %, by weight, of emollient; and (c) greater than 10 %, by weight, of humectant. The compositions of the present invention give good skin care benefits, such as good moisturisation, good hydration, good skin feel, good skin softness and/or good skin smoothness, with low levels of negatives such as greasiness, stickiness or tack.

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Skin compositions with high levels of polyhydric alcohols and therefore high levels of moisturisation, however, are often perceived by the consumer as unpleasant as such compositions can feel sticky when applied to the skin. Another way of delivering desirable skin benefits to the skin is to incorporate emollient materials such as polyol carboxylic acid esters into skin care compositions. However, such compositions can suffer from undesirable negatives in terms of skin feel (i.e. they often feel very greasy on the skin) as well as having poor rub-in, absorption and residue characteristics.

It has been found that there is a direct relationship between the amount of the skin benefit agent and the effectiveness of the composition at delivering benefits to the skin. However, it is also the case that the higher the level of skin benefit agent the higher the risk of the associated negatives. Therefore, to date, it has been necessary to balance the benefits of compositions comprising high levels of the skin benefit agents against the negatives associated with such high levels. Thus, there remains a need for compositions which contain high levels of skin benefit agents, and therefore provide high levels of moisturisation and hydration, as well as providing excellent skin feel, skin softness and skin smoothness benefits, but show low levels of the associated negatives such as greasiness, stickiness or tackiness.

Quaternary ammonium agents are known for use in cosmetic compositions. See, for example, WO-A-99/27904, WO-A-96/32089, and EP-A-789,076. Also, US-A-5,804,205 which discloses skin care compositions which are claimed to provide a high degree of moisturisation without leaving a "tacky" or "sticky" residue. The compositions contain quaternary ammonium compounds having two alkyl groups of 16-22 carbon atoms, humectant and non-irritating hydrophobic microspheres having an average particle size of less than 50 μm . It is claimed that the hydrophobic polymeric microspheres significantly reduce the "tackiness" associated with high humectant levels. The compositions of US-A-5,804,205 may also contain low levels of emollients such as petrolatum or mineral oil.

It has now been unexpectedly found that compositions can be formulated with high levels of skin benefit agents and low levels of the negatives normally

Detailed Description of the Invention

The compositions of the present invention comprise at least one quaternary ammonium agent, greater than 10%, by weight, of emollient and greater than 10%, by weight, of humectant. These elements will be described in more detail below.

The present compositions can be used for any suitable purpose. In particular, the present compositions are suitable for topical application to the skin. In particular, the skin care compositions can be in the form of creams, lotions, gels, and the like. Preferably the cosmetic compositions herein are in the form of an oil-in-water emulsion of one or more oil phases in an aqueous continuous phase, each oil phase comprising a single oily component or a mixture of oily components in miscible or homogeneous form but said different oil phases containing different materials or combinations of materials from each other.

The compositions of the present invention preferably comprise vesicles. Preferably said vesicles comprise quaternary ammonium compound together with humectant and/or emollient. As used herein the term "vesicle" means one or more bilayers arranged in a closed, usually spherical geometry, said bilayer comprises quaternary ammonium agent as described hereinbelow.

Preferably the compositions of the present invention comprise less than 10%, preferably less than 5%, more preferably less than 3%, even more preferably 0%, by weight, of anionic surfactant.

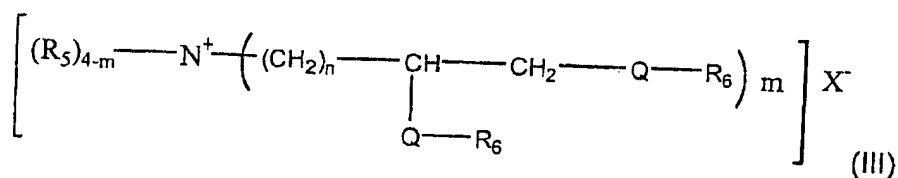
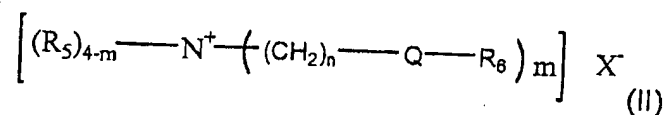
The compositions of the present invention are preferably formulated so as to have a product viscosity of at least about 1,000 mPa.s and preferably in the range from about 1,000 to about 300,000 mPa.s, more preferably from about 2,500 to about 250,000 mPa.s and especially from about 5,000 to about 200,000 mPa.s (26.8°C, neat, Brookfield DV-II+ Spindle CP52/CP41)

Quaternary Ammonium Agent

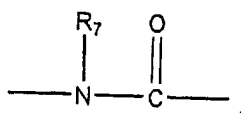
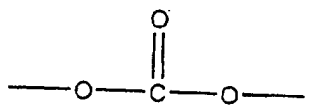
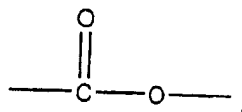
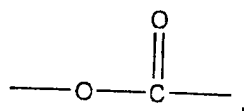
The compositions of the present invention must comprise at least one quaternary ammonium agent. Any quaternary ammonium agent suitable for use

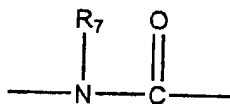
and R_3 & R_4 are linear or branched alkyl or alkenyl chains comprising at least 11 atoms, preferably at least 15 carbon atoms.

(b) quaternary ammonium compounds according to general formula (II) or (III):



wherein, each R_5 unit is independently selected from hydrogen, branched or straight chain C_1 - C_6 alkyl, branched or straight chain C_1 - C_6 hydroxyalkyl and mixtures thereof, preferably methyl and hydroxyethyl; each R_6 unit is independently linear or branched C_{11} - C_{22} alkyl, linear or branched C_{11} - C_{22} alkenyl, and mixtures thereof; X^- is an anion which is compatible with skin care actives and adjunct ingredients; m is from 1 to 4, preferably 2; n is from 1 to 4, preferably 2 and Q is a carbonyl unit selected from:



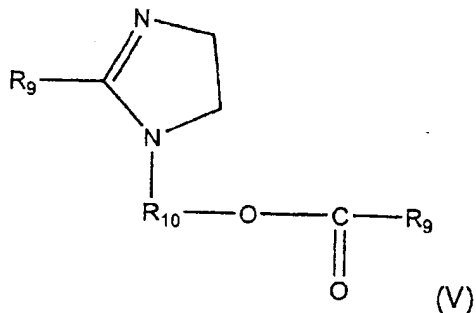
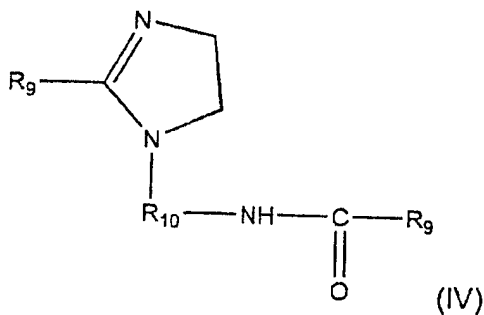


Tallow, canola and palm oil are convenient and inexpensive sources of fatty acyl units which are suitable for use in the present invention as R₆ units.

The counterion, X⁻, can be chloride, bromide, methylsulfate, formate, sulfate, nitrate, and mixtures thereof. In fact, the anion, X⁻, is merely present as a counterion of the positively charged quaternary ammonium compounds. The scope of this invention is not considered limited to any particular anion.

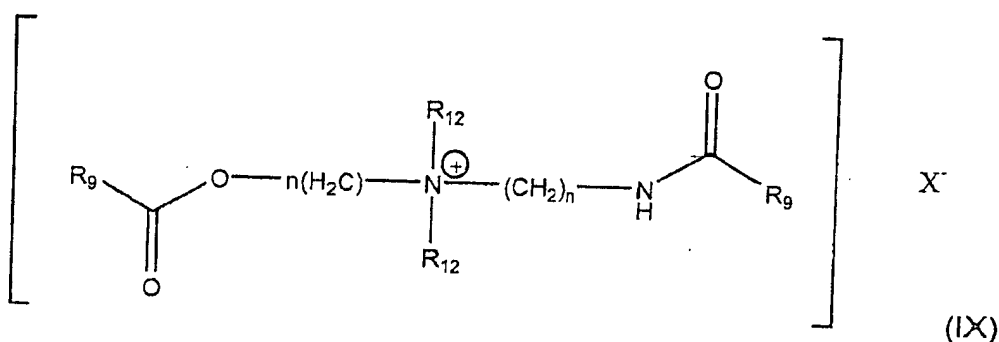
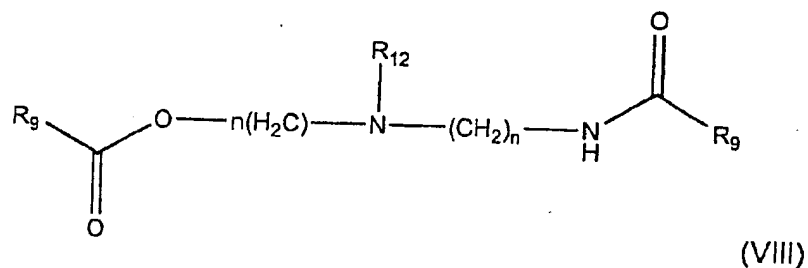
As used herein, when the diester is specified, it will include the monoester and triester that are normally present as a result of the manufacture process.

(c) quaternary ammonium compounds according to general formula (IV) or (V):



wherein R₉ is an acyclic aliphatic C₁₅-C₂₁ hydrocarbon group and R₁₀ is a C₁-C₆ alkyl or alkylene group.

(e) quaternary ammonium compounds according to general formula (VIII) or (IX):



wherein, n is from 1 to 6, R₉ is selected from acyclic aliphatic C₁₅-C₂₁ hydrocarbon groups and R₁₂ is selected from C₁-C₄ alkyl and hydroxyalkyl groups.

These ammonium compounds (VIII), having a pKa value of not greater than about 4, are able to generate a cationic charge in situ when dispersed in an aqueous solution, providing that the pH of the final composition is not greater than about 6.

The counterion, X⁻ (IX), can be chloride, bromide, methylsulfate, formate, sulfate, nitrate, and mixtures thereof. In fact, the anion, X, is merely present as a counterion of the positively charged quaternary ammonium compounds. The scope of this invention is not considered limited to any particular anion.

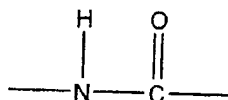
(f) diquaternary ammonium compounds according to general formula (X), (XI), (XII) or (XIII):

(g) mixtures of the above quaternary ammonium compounds.

The preferred quaternary ammonium agents for use in the present invention are those described in section (b) hereinabove. In particular, diester and/or diamide quaternary ammonium (DEQA) compounds according to general formula (II) hereinabove are preferred. Preferred diesters for use herein are those according to general formula (II) wherein R_5 , R_6 , and X^- are as defined hereinabove and Q is:



Preferred diamides for use herein are those according to general formula (II) wherein R_5 , R_6 , and X^- are as defined hereinabove and Q is:



Preferred examples of quaternary ammonium compounds suitable for use in the compositions of the present invention are N,N-di(canolyl-oxy-ethyl)-N,N-dimethyl ammonium chloride, N,N-di(canolyl-oxy-ethyl)-N-methyl,N-(2-hydroxyethyl) ammonium methyl sulfate, N,N-di(canolyl-oxy-ethyl)-N-methyl, N-(2-hydroxyethyl) ammonium chloride and mixtures thereof. Particularly preferred for use herein is N,N-di(canolyl-oxy-ethyl)-N-methyl,N-(2-hydroxyethyl) ammonium methyl sulfate.

Although quaternary ammonium compounds are derived from "canolyl" fatty acyl groups are preferred, other suitable examples of quaternary ammonium compounds are derived from fatty acyl groups wherein the term "canolyl" in the above examples is replaced by the terms "tallowyl, cocoyl, palmyl, lauryl, oleyl, ricinoleyl, stearyl, palmityl" which correspond to the triglyceride source from which the fatty acyl units are derived. These alternative fatty acyl sources can comprise either fully saturated, or preferably at least partly unsaturated chains.

thereof. Even more preferably, the humectants for use herein are selected from glycerine, urea and mixtures thereof, especially glycerine.

Emollients

A third essential element of the compositions of the present invention is that they comprise greater than 10%, by weight, of emollient. Emollients tend to lubricate the skin, increase the smoothness and suppleness of the skin, prevent or relieve dryness of the skin, and/or protect the skin. A wide variety of suitable emollients are known and may be used herein. *Sagarin, Cosmetics, Science and Technology, 2nd Edition, Vol. 1, pp. 32-43 (1972)* contains numerous examples of materials suitable for use as emollients. Preferably the compositions of the present invention comprise greater than 12%, more preferably at least 15%, even more preferably at least 20%, by weight, of emollient.

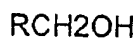
Preferably the emollients for use herein are selected from:

- i) Straight and branched chain hydrocarbons having from about 7 to about 40 carbon atoms, such as dodecane, squalane, petrolatum, cholesterol and derivatives thereof, hydrogenated polyisobutylene, isohexadecane and the C₇-C₄₀ isoparaffins, which are C₇-C₄₀ branched hydrocarbons.
- ii) C₁-C₃₀ alcohol esters of C₁-C₃₀ carboxylic acids and of C₂-C₃₀ dicarboxylic acids, e.g. isononyl isononanoate, isopropyl myristate, myristyl propionate, isopropyl stearate, behenyl behenate, dioctyl maleate, diisopropyl adipate, and diisopropyl dilinoleate.
- iii) mono-, di- and tri- glycerides of C₁-C₃₀ carboxylic acids and ethoxylated derivatives thereof. Suitable polyethylene glycol derivatives of glycerides include PEG-20 almond glycerides, PEG-60 almond glycerides, PEG-11 avocado glycerides, PEG-6 capric/caprylic glycerides, PEG-8 capric/caprylic glycerides, PEG-20 corn glycerides, PEG-60 corn glycerides, PEG-60 evening primrose glycerides, PEG-7 glyceryl cocoate, PEG-30 glyceryl cocoate, PEG-40 glyceryl cocoate, PEG-78 glyceryl cocoate, PEG-80 glyceryl cocoate, PEG-12 glyceryl dioleate, PEG-15 glyceryl isostearate, PEG-20 glyceryl isostearate, PEG-30 glyceryl isostearate, PEG-75 cocoa butter glycerides, PEG-20 hydrogenated palm oil glycerides, PEG-70 mango glycerides, PEG-13 mink glycerides, PEG-75 shorea butter glycerides, PEG-10 olive glycerides, PEG-12 palm kernal glycerides, PEG-45 palm kernal

Preferred emollients for use in the compositions herein are selected from dodecane, squalane, cholesterol and derivatives thereof, isohexadecane, isononyl isononanoate, petrolatum, lanolin and derivatives thereof, safflower oil, castor oil, coconut oil, cottonseed oil, palm kernel oil, palm oil, peanut oil, soybean oil, polyol carboxylic acid esters and mixtures thereof. More preferred emollients for use herein are selected from polyol carboxylic acid esters, petrolatum and mixtures thereof.

These esters are derived from a sugar or polyol moiety and one or more carboxylic acid moieties. Depending on the constituent acid and sugar, these esters can be in either liquid or solid form at room temperature. Examples of liquid esters include: glucose tetraoleate, the glucose tetraesters of soybean oil fatty acids (unsaturated), the mannose tetraesters of mixed soybean oil fatty acids, the galactose tetraesters of oleic acid, the arabinose tetraesters of linoleic acid, xylose tetralinoleate, galactose pentaoleate, sorbitol tetraoleate, the sorbitol hexaesters of unsaturated soybean oil fatty acids, xylitol pentaoleate, sucrose tetraoleate, sucrose pentaoleate, sucrose hexaoleate, sucrose heptaoleate, sucrose octaoleate, and mixtures thereof. Examples of solid esters include: sorbitol hexaester in which the carboxylic acid ester moieties are palmitoleate and arachidate in a 1:2 molar ratio; the octaester of raffinose in which the carboxylic acid ester moieties are linoleate and behenate in a 1:3 molar ratio; the heptaester of maltose wherein the esterifying carboxylic acid moieties are sunflower seed oil fatty acids and lignocerate in a 3:4 molar ratio; the octaester of sucrose wherein the esterifying carboxylic acid moieties are oleate and behenate in a 2:6 molar ratio; and the octaester of sucrose wherein the esterifying carboxylic acid moieties are laurate, linoleate and behenate in a 1:3:4 molar ratio. A preferred solid material is sucrose polyester in which the degree of esterification is 7-8, and in which the fatty acid moieties are C18 mono- and/or di-unsaturated and behenic, in a molar ratio of unsaturates: behenic of 1:7 to 3:5. A particularly preferred solid sugar polyester is the octaester of sucrose in which there are about 7 behenic fatty acid moieties and about 1 oleic acid moiety in the molecule. Other materials include cottonseed oil or soybean oil fatty acid esters of sucrose. The ester materials are further described in, U. S. Patent No. 2,831,854, U. S. Patent No. 4,005,196, to Jandacek, issued January 25, 1977; U. S. Patent No. 4,005,195, to Jandacek,

soluble polymers as cellulose ethers (e.g. hydroxybutyl methyl cellulose, hydroxypropylcellulose, hydroxypropyl methyl cellulose, ethylhydroxy ethyl cellulose, hydrophobically modified hydroxyethyl cellulose and hydroxyethylcellulose), poly(ethylene oxide), polyvinyl alcohol, polyvinylpyrrolidone, hydroxypropyl guar gum, amulose, hydroxyethyl amylose, starch, and starch derivatives. Suitable fatty alcohols are higher molecular weight, nonvolatile, primary alcohols having the general formula



wherein R is a C₈₋₂₀ alkyl. They can be produced from natural fats or oils by reduction of the fatty acid COOH-grouping to the hydroxyl function. Alternatively, identical or similarly structured fatty alcohols can be produced according to conventional synthetic methods known in the art. Suitable fatty alcohols include, but are not limited to behenylalcohol, C₉-C₁₁ alcohols, C₁₂-C₁₃ alcohols, C₁₂-C₁₅ alcohols, C₁₂-C₁₆ alcohols, C₁₄-C₁₅ alcohols, caprylic alcohol, cetearyl alcohol, coconut alcohol, decyl alcohol, isocetyl alcohol, isostearyl alcohol, lauryl alcohol, oleyl alcohol, palm kernel alcohol, stearyl alcohol, cetyl alcohol, tallow alcohol, tridecyl alcohol or myristyl alcohol.

Other Skin Benefit Agents

Other skin benefit agents may be useful in the compositions of the present invention. Examples of other skin benefit agents that may be used in the present compositions include:

(a) Vitamin Compounds

The present compositions may comprise vitamin compounds, precursors, and derivatives thereof. These vitamin compounds may be in either natural or synthetic form. Suitable vitamin compounds include, Vitamin A (e.g., beta carotene, retinoic acid, retinol, retinoids, retinyl palmitate, retinyl propionate, etc.), Vitamin B (e.g., niacin, niacinamide, riboflavin, pantothenic acid, etc.), Vitamin C (e.g., ascorbic acid, etc.), Vitamin D (e.g., ergosterol, ergocalciferol, cholecalciferol, etc.), Vitamin E (e.g., tocopherol acetate, etc.), and Vitamin K (e.g., phytonadione, menadione, phthiocol, etc.) compounds. Preferred vitamin compounds for use in the compositions of the present invention are vitamin B₃

N-acetyl derivatives, a preferred example of which is N-acetyl-L-cysteine; thiols, e.g., ethane thiol; hydroxy acids, phytic acid, lipoic acid; lysophosphatidic acid, and skin peel agents (e.g., phenol and the like).

(c) Antimicrobial and Antifungal Actives

Examples of antimicrobial and antifungal actives that may be used in the compositions of the present invention include, but are not limited to, β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, 2,4,4'-trichloro-2'-hydroxy diphenyl ether, 3,4,4'-trichlorocarbaniide, phenoxyethanol, phenoxy propanol, phenoxyisopropanol, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methenamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole, tetracycline hydrochloride, erythromycin, zinc erythromycin, erythromycin estolate, erythromycin stearate, amikacin sulfate, doxycycline hydrochloride, capreomycin sulfate, chlorhexidine gluconate, chlorhexidine hydrochloride, chlortetracycline hydrochloride, oxytetracycline hydrochloride, clindamycin hydrochloride, ethambutol hydrochloride, metronidazole hydrochloride, pentamidine hydrochloride, gentamicin sulfate, kanamycin sulfate, lineomycin hydrochloride, methacycline hydrochloride, methenamine hippurate, methenamine mandelate, minocycline hydrochloride, neomycin sulfate, netilmicin sulfate, paromomycin sulfate, streptomycin sulfate, tobramycin sulfate, miconazole hydrochloride, amanfadine hydrochloride, amanfadine sulfate, octopirox, parachlorometa xylenol, nystatin, tolnaftate, zinc pyrithione and clotrimazole.

(d) Sunscreen Actives

The compositions herein may also comprise sunscreen actives. A wide variety of sunscreen agents are useful herein. These sunscreen agents include both organic compounds and their salts as well as inorganic particulate materials. Without being limited by theory, it is believed that sunscreen agents provide protection from ultraviolet radiation by one or more of the following mechanisms including absorption, scattering, and reflection of the ultraviolet radiation. Nonlimiting examples of these sunscreen agents are described in U.S. Patent No. 5,087,445, to Haffey et al., issued February 11, 1992; U.S. Patent No.

phenylbenzimidazole-5-sulfonic acid, DEA p-methoxycinnamate, 4,4'-methoxy-t-butyl dibenzoylmethane, 4-isopropyl dibenzoylmethane, 3-(4-methylbenzylidene) camphor, 3-benzylidene camphor, 4-N,N-(2-ethylhexyl)methylaminobenzoic acid ester with 4-(2-hydroxyethoxy)dibenzoylmethane, titanium dioxide, zinc oxide, iron oxide, and mixtures thereof.

Exact amounts of sunscreens which can be employed will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF) to be achieved. SPF is a commonly used measure of photoprotection of a sunscreen against erythema. See Federal Register, Vol. 43, No. 166, pp. 38206-38269, August 25, 1978.

Polar Solvent

The compositions of the present invention may also comprise polar solvent. Any polar solvent suitable for use in cosmetic compositions may be used herein. However, the polar solvent must be sufficiently polar to drive the formation of vesicles in the present invention. Preferably the polar solvent used in the compositions of the present invention is water.

Preferably comprise the present compositions will comprise from 10% to 90%, more preferably from 20% to 80%, even more preferably from 30% to 60%, by weight, of polar solvent.

Other Optional Ingredients

The compositions of the present invention can comprise a wide range of other optional components. These additional components should be pharmaceutically acceptable. Non-limiting examples of functional classes of ingredients suitable for use in the compositions of the present invention include: abrasives, absorbents, anti-acne actives, anticaking agents, anti-dandruff agents, anti-perspirant agents, antioxidants, anti-viral actives, artificial tanning actives and accelerators, biological additives, bleach, bleach activators, brighteners, builders, buffering agents, chelating agents, chemical additives, colorants, cosmetics, cleansers, cosmetic astringents, cosmetic biocides, denaturants, deodorants, desquamation actives, depilatories, drug astringents, dyes, dye transfer agents, enzymes, external analgesics, foam generators, flavours, film

soluble ingredients are heated to the same temperature as the oil phase.

- (iv) the temperature of the oil and aqueous phases of the emulsion are then approximately equalised and the aqueous phase is combined with the oil phase with agitation.
- (v) On production of the emulsion the mixture formed in step (i) is added to the aforementioned emulsion with agitation.

Method of Use

The cosmetic compositions of the present invention may be used in a conventional manner for the treatment of skin. An effective amount of the composition, typically from about 0.1 grams to about 50 grams, preferably from about 1 gram to about 20 grams, is applied to wet or dry, preferably wet, skin. Application of the composition typically includes working the composition into the skin, generally with the hands and fingers. The composition is then left on the skin or, preferably, the skin is rinsed.

The preferred method of treating the skin, therefore, comprises the steps of:

- (a) applying an effective amount of the cosmetic composition to the skin,
- (b) rinsing the skin.

A preferred aspect of the present invention involves the above method with an application of the composition on dry skin before an application on wet skin. Therefore, a preferred method comprises:

- (i) applying to dry skin an effective amount of the cosmetic composition;
- (ii) rinsing the skin under a shower;
- (iii) further application of said composition; and
- (iv) further rinsing.

Much of the damage to human skin is caused by repeated exposure to surfactant containing compositions during washing routines. It has been found that this damage can be mitigated using the present compositions. Therefore, another preferred method comprises:

- (i) washing the skin using a composition comprising surfactants;
- (ii) rinsing the skin;

Petrolatum	-	-	10	-	12	15	-	-	-	10	-	12	15	B
Lanolin ¹	-	-	-	7.5	5	-	15	-	-	-	10	10	-	B
Coronet Lanolin ¹	-	-	-	-	-	-	5	-	-	-	-	-	-	B
Super Sterol Esters ¹	-	-	-	-	-	-	5	-	-	-	-	-	-	B
Sefa Cottonate	21	21	12	12	-	-	-	21	21	12	12	-	-	B
Dimethicone 10Cst	-	0.5	0.5	0.5	-	0.5	0.5	0.5	-	-	-	0.5	0.5	B
Dimethicone 1000Cst	-	1.0	1.0	1.0	-	1.0	1.0	1.0	-	-	-	1.0	1.0	B
Cyclomethicone	-	2.5	2.5	2.5	-	2.5	2.5	2.5	-	-	-	2.5	2.5	B
FlorasunPEG-10 ²	-	2	-	2	-	3	-	1	-	-	3	-	-	B
Methyl Paraben	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	A
Propyl Paraben	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	B
Disodium EDTA	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A
Sodium Benzoate	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	B
Niacinamide	5	5	3		5	5	5	3	5			5	5	A
Panthenol	3	3	1		3	3	3	1	3			3	3	A
Tocopherol Acetate	2	2	0.5		2	2	2	0.5	2			2	2	B
Retinol Palmitate	0.1	-	-	-	-	-	0.05	-	-	0.1	-	-	-	B
Parsol 1789 ³	-	1	-	1	0.5	-	0.1	-	1	-	1	-	1	B
Parsol MCX ³	-	5	-	5	2.5	-	0.5	-	5	-	5	-	5	B
Citric acid	1	0.5	1	0.5	0.5	1	0.5	1	0.3	0.75	1	1	1	A
Salicylic acid	-	0.5	-	0.5	0.5	-	0.5	-	0.7	-	-	-	-	A
Triethanolamine	0.1	-	-	0.1	0.1	-	-	-	0.1	-	-	0.9	0.5	C
Sodium Hydroxide	-	-	0.1	0.1	0.1	-	-	0.1	-	0.1	-	-	-	C
Polyquaternium 10	-		-	1.0		-	0.5	-	0.6	-	-	-	0.5	B
Polymer KG 30 ⁴	-	0.7	-		0.7	-		-	-	0.8	-	-	-	B
Fragrance	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	E
Cetyl Alcohol	3	-	-	-	2.6	-	-	2.2	-	2.2	-	2.5	-	C
Stearyl Alcohol	2	-	-	-	1.5	-	-	3.2	-	1.1	-	1.6	-	C
Cetearyl Alcohol	-	-	4	-	0.4	-	-	-	3.4	-	-	-	3.4	C

Disodium EDTA	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	A
Sodium Benzoate	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	B
Niacinamide	5	5	3		5	5	5	3	5			5	5	A
Panthenol	3	3	1		3	3	3	1	3			3	3	A
Tocopherol Acetate	2	2	0.5		2	2	2	0.5	2			2	2	B
Retinol Palmitata	0.1	-	-	-	-	0.05	-	-	-	-	-	-	0.15	B
Parsol 1789 ³	-	1	-	1	0.5	-	0.1	-	1	-	1	-	1	B
Parsol MCX ³	-	5	-	5	2.5	-	0.5	-	5	-	5	-	5	B
Citric acid	1	0.5	1	0.5	0.5	1	0.5	1	0.3	0.7 5	1	1	1	A
Salicylic acid	-	0.5	-	0.5	0.5	-	0.5	-	0.7	-	-	-	-	A
Triethanolamine	0.1	-	-	0.1	0.1	-	-	-	0.1	-	-	0.9	0.5	C
Sodium Hydroxide	-	-	0.1	0.1	0.1	-	-	0.1	-	0.1	-	-	-	C
Polyquat. 10	-		-	1.0		-	0.5	-	0.6	-	-	-	0.5	B
Polymer KG 30 ⁴	-	0.7	-		0.7	-		-	-	0.8	-	-	-	B
Fragrance	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	E
Cetyl Alcohol	3	-	-	-	2.6	-	-	2.2	-	2.2	-	2.5	-	C
Stearyl Alcohol	2	-	-	-	1.5	-	-	3.2	-	1.1	-	1.6	-	C
Cetearyl Alcohol	-	-	4	-	0.4	-	-	-	3.4	-	-	-	3.4	C
Behenyl Alcohol	2	-	2	-	-	-	-	0.6	-	0.7	-	-	-	C
Natrosol 330 Plus	1	-	-	-	0.4	-	-	0.7	0.6		-	0.5	0.25	C
Natrosol 250 HHR	-	-	1	-	0.3	-	-	-	-	1.2	-	-	0.3	C
Jaguar HP 105 ⁵	-	1.2	-	-	-	-	-	-	-	-	0.8	-	-	D
Jaguar C14S ⁵	-	-	-	1	-	-	-	-	-	-	-	-	-	D
Jaguar C13S ⁵	-	-	-	-	-	1.2	-	-	-	-	-	-	-	D
Xanthan Gum	-	-	-	-	-	-	2.0	-	-	-	-	-	-	D
Sodium Chloride	-	-	0.1	-	-	-	0.5	0.2	-	0.3	-	-	-	A
Water	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	A

Example	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
	Weight %															

Salicylic acid	-	0.5	-	0.5	0.5	-	0.5	-	0.7	-	-	-	-	-	0.5	A
Triethanolamine	0.1	-	-	0.1	0.1	-	-	-	0.1	-	-	0.9	0.5	-	-	C
Sodium Hydroxide	-	-	0.1	0.1	0.1	-	-	0.1	-	0.1	-	-	-	-	0.6	C
Polyquaternium 10	-	-	-	1.0	-	-	0.5	-	0.6	-	-	-	0.5	1.0	-	B
Polymer KG 30 ⁴	-	0.7	-	-	0.7	-	-	-	-	0.8	-	-	-	-	0.8	B
Fragrance	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	E
Cetyl Alcohol	3	-	-	-	2.6	-	-	2.2	-	2.2	-	2.5	-	-	3.2	C
Stearyl Alcohol	2	-	-	-	1.5	-	-	3.2	-	1.1	-	1.6	-	-	2.6	C
Cetearyl Alcohol	-	-	4	-	0.4	-	-	-	3.4	-	-	-	3.4	-	-	C
Behenyl Alcohol	2	-	2	-	-	-	-	0.6	-	0.7	-	-	-	-	0.2	C
Natrosol 330 Plus	1	-	-	-	0.4	-	-	0.7	0.6	-	-	0.5	0.25	-	0.6	C
Natrosol 250 HHR	-	-	-	-	0.3	-	-	-	-	1.2	-	-	0.3	-	-	C
Jaguar HP 105 ⁵	-	1.2	-	-	-	-	-	-	-	-	0.8	-	-	-	-	D
Jaguar C14S ⁵	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	D
Jaguar C13S ⁵	-	-	-	-	-	1.2	-	-	-	-	-	-	-	0.8	-	D
Xanthan Gum	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	D
Sodium Chloride	-	-	0.1	-	-	-	0.5	0.2	-	0.3	-	-	-	0.2	0.1	A
Water	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	A

Example	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	
	Weight %															
Quaternary Amm. Agent (see notes)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	A
Glycerine	15	16	22	9	8	9	-	32	32	32	32	32	32	32	32	A
Propylene Glycol	-	16	-	-	-	5	12	-	-	-	-	-	-	-	-	A
Butylene Glycol	-	-	8	8	-	8	12	-	-	-	-	-	-	-	-	A
Urea	-	-	-	12	-	2	9	-	-	-	-	-	-	-	-	A
Petrolatum	-	-	10	-	12	15	-	-	4	7.5	-	12	5	-	6	B
Lanolin ¹	-	-	-	7.5	7.5	-	15	-	3.5	-	3	-	-	-	-	B
Coronet Lanolin ¹	-	-	-	-	-	-	-	-	7	-	6.7	-	-	6	-	B
Super Sterol Esters ¹	-	-	-	-	-	-	-	-	3.5	-	6.5	-	3	6	3	B
Isohexadecane	-	-	-	-	-	-	-	-	-	5	-	3	-	-	3	B
Isononyl	-	-	-	-	-	-	-	-	-	3	-	5	-	-	-	B

Sodium Chloride	-	-	0.1	-	-	-	0.5	0.2	-	0.3	-	-	-	0.2	0.1	A
Water	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	qs	A

- 1; Available from Croda
- 2; Available from Floratech, AZ, USA
- 3; Available from Hoffman La Roche, NJ, USA
- 4; Available from Amerchol, NJ, USA
- 5; Available from Rhodia, NJ, USA

Notes

- In examples 1,4,7,9,17,20,22,24,28,36,38,47,49,53,56 the quaternary ammonium compound used is Distearyl Dimethyl Ammonium Chloride supplied by Goldschmidt, trade name Varisoft TA100.
- In examples 2,3,5,6,8,10,15,16,18,19,21,23,26,27,31,33,34,35,37,41,45,46,48,50,51,52,54,55, the quaternary ammonium compounds used is N,N-di(canolyl-oxy-ethyl)-N methyl,N-(2-hydroxyethyl)Ammonium Methyl Sulfate supplied by Goldschmidt, trade name Rewoquat V3620.
- In Example 11 the quaternary ammonium compound used is N,N-di(canolyl-oxy-ethyl)-N methyl,N-(2-hydroxyethyl)Ammonium Methyl Sulfate supplied by Goldschmidt, trade name Rewoquat WE18
- In Example 12 the quaternary ammonium compound used is N,N-di(canolyl-oxy-ethyl)-N methyl,N-(2-hydroxyethyl)Ammonium Chloride supplied by Goldschmidt, developmental material (WE25)
- In Example 13 the quaternary ammonium compound used is Methylbis(hydrogenated tallowamidoethyl)(2-hydroxyethyl)ammonium methyl sulfate supplied by Goldschmidt, trade name Varisoft 110.
- In Example 14 the quaternary ammonium compound used is Methylbis(tallowamidoethyl)(2-hydroxyethyl)ammonium methyl sulfate supplied by Goldschmidt, trade name Varisoft 222.
- In Example 25 the quaternary ammonium compound used is Methyl-1-tallowylethyl-2-tallowimidazoline supplied by Goldschmidt, developmental material

2. **Premix 2:** Combine components of groups B and C with the remaining parts of the quaternary ammonium compounds and water not previously used in premix 1. Heat above the melting point of the quat and the oils.
3. Combine Premix 1 & 2 and allow to cool until 40°C, stir in the perfume.

For those examples including component D:

1. **Premix 1:** Combine components of group A together at a temperature greater than the transition temperature of the chosen quaternary ammonium compound, keeping back a predetermined part of the water. Vigorously agitate this premix.
2. **Premix 2:** Combine with agitation the components of group D with the water not previously used in premix 1.
3. Combine Premix 1 & 2 and components of groups B & E. Vigorously agitate.

The compositions of the above examples provide good skin care benefits, such as good moisturisation, good hydration, good skin feel, good skin softness and/or good skin smoothness, with low levels of negatives such as greasiness, stickiness or tack.

8. A composition according to any of the preceding claims wherein the quaternary ammonium agent is selected from N,N-di(canolyl-oxy-ethyl)-N,N-dimethyl ammonium chloride, N,N-di(canolyl-oxy-ethyl)-N-methyl,N-(2-hydroxyethyl) ammonium methyl sulfate, N,N-di(canolyl-oxy-ethyl)-N-methyl, N-(2-hydroxyethyl) ammonium chloride and mixtures thereof.
9. A composition according to any of the preceding claims wherein said composition comprises less than 5%, preferably less than 3%, preferably 0%, by weight, of anionic surfactant.
10. Use of a composition according to any of the preceding claims for the treatment of skin.

INTERNATIONAL SEARCH REPORT

Inter national Application No

PCT/US 00/17644

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>WO 99 38485 A (DRECHSLER LEE ELLEN ;BECK PETRA (GB); BELL MICHAEL (GB); CSELIK FR) 5 August 1999 (1999-08-05) page 4, last paragraph page 5 -page 7 page 19, paragraph 3 page 22, paragraph 3 page 28, paragraph 3 - paragraph 4</p>	1-3, 5, 6, 9, 10
Y	<p>WO 96 03970 A (WITCO CORP) 15 February 1996 (1996-02-15) page 10, line 21 - line 31 page 11, line 15 - line 17 page 12, line 15 claims; examples</p>	1-10
Y	<p>GB 1 554 615 A (WILSON E S) 24 October 1979 (1979-10-24) claims</p>	1-10
Y	<p>US 5 145 604 A (NEUMILLER PHILLIP J) 8 September 1992 (1992-09-08) column 12; example 14</p>	4